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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ROCKWELL AUTOMATION, INC./BF
ATTENTION: SUSAN M. DONAHUE, E-7F19
1201 SOUTH SECOND STREET
MILWAUKEE, WI 53204

EXAMINER
PHAM, THOMAS K

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/808,772	MATURANA ET AL.
	Examiner	Art Unit	
	Thomas K. Pham	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 March 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-34</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-7,11-13,15-22,24,25 and 29-34</u> is/are rejected.

7)☒ Claim(s) <u>8-10,14,23 and 26-28</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Response to Amendment

1.   This action is in response to the request for re-consideration filed 03/02/2007.

2.   Claim 35 has been cancelled.

3.   Claims 8-10, 14, 23, and 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4.   Applicants' arguments, with respect to claim 1, have been considered but they are not persuasive.

Quotations of U.S. Code Title 35

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ541, 550-551 (CCPA 1969)" (MPEP p2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. The Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

Claim Rejections - 35 USC § 102

7. Claims 1-7, 11-13, 15-22, 24, 25, and 29-35 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,499,364 ("Klein").

Regarding claim 1

Klein teaches the invention including a controller configured to operate as at least one agent, the controller comprising: at least one processing device – see FIG. 1; and at least one storage medium that is in communication with the at least one processing device – see FIG. 4, wherein the at least one storage medium stores a plurality of program portions that are executed by the at least one processing device – see FIG. 4 and column 5 lines 29-37, and wherein the plurality of program portions includes a first program portion capable of generating first signals that are commands to be provided to a controlled device – see FIG. 5 and column 5 lines 38-49 "library 178 of control programs"; and a second program portion capable of governing standard agent-type functionality – see FIG. 6, column 5 lines 34-37 and column 7 lines 13-33 "knowledge database 184 governs information concerning functional and status aspects of the agents"; and a third program portion capable of governing application-specific agent-type functionality – see column 7 lines 14-33, "governing application-specific agent-type by way of the local knowledge database tables".

Regarding claim 25

Klein teaches the invention including a distributed control system for controlling a process performed by a plurality of controllable devices including first and second controllable devices, the distributed control system comprising: a network – see FIG. 4; and first and second controllers coupled to the network, wherein the first and second controllers include first and

second processors, respectively, and first and second storage media, respectively – see FIG. 4

and column 5 lines 13-28, "there are plurality of agent, each is shown in FIG. 4 which includes a

processor and a storage media"; wherein first and second application-specific control programs

are stored on the first and second storage media – see column 7 lines 14-33, "governing

application-specific agent-type by way of the local knowledge database tables", respectively, the

first and second control programs enabling the respective first and second controllers to generate

commands to be provided to the first and second controllable devices, respectively – see FIG. 5

and column 5 lines 38-49 "library 178 of control programs"; and wherein first and second agent-

related programs are additionally stored on the first and second storage media, respectively, the

first and second agent-related programs each including agent-type programming to enable the

first and second controllers to operate as agents – see FIG. 2, FIG. 4, column 4 lines 45-52 and

column 5 lines 29-34, "application program 120 operates the agents", to communicate with one

another via the network, and to interact with the first and second control programs to govern

operations of the first and second controllable devices – see column 4 lines 45-52

"communicating with the network via the machine interface program 124" and FIG. 6, column 5

lines 34-37 and column 7 lines 13-33 "knowledge database 184 governs information concerning

functional and status aspects of the agents".

Regarding claim 29

Klein teaches the invention including a configuration device for enabling an industrial controller

to operate as an agent that governs a controllable device, the configuration device comprising: a

storage medium that stores an application-specific agent program portion capable of governing at

least some agent-type functionality – see FIG. 6, column 5 lines 34-37 and column 7 lines 13-33

"knowledge database 184 governs information concerning functional and status aspects of the agents", and an application-specific control program portion capable of generating control signals to be provided to the controllable device – see FIG. 2, FIG. 4, column 4 lines 45-52 and column 5 lines 29-34, "application program 120 operates the agents"; and an interface configured to allow the application-specific agent program portion and the application-specific control program portion to be downloaded onto the industrial controller – see column 4 lines 45-52 "communicating with the network via the machine interface program 124" and column 7 lines 14-33, "governing application-specific agent-type by way of the local knowledge database tables".

Regarding claim 32

Klein teaches the invention including a method of configuring a controller for operation as part of a multi-agent distributed control system that controls a plurality of devices to perform a process, the method comprising: providing a controller that stores, and is capable of operating in accordance with, first and second program portions – see FIG. 4 and column 5 lines 16-27 "sub-system 160 is operate in accordance with the programming portion in the primary memory", wherein the first program portion is capable of processing incoming signals received from, and outgoing signals provided onto, a network connected to the controller so that network protocol information appropriate for communicating the signals over the network is removed from or added to the incoming and outgoing signals, respectively – see column 5 lines 21-25 and FIG. 4 shows network interface 171 connects programming portions via application interface 124, and wherein the second program portion is capable of governing general agent-type functionality of the controller – see FIG. 6, column 5 lines 34-37 and column 7 lines 13-33 "knowledge database

184 governs information concerning functional and status aspects of the agents"; and

supplementing the controller with application-specific control programming and application-

specific agent-type programming so that the controller is able to operate as an agent in relation to

both other agents of the multi-agent distributed control system and in relation to at least one of

the controllable devices – see FIG. 2, FIG. 4, column 4 lines 45-52 and column 5 lines 29-34,

"application program 120 operates the agents" and column 7 lines 14-33, "governing

application-specific agent-type by way of the local knowledge database tables".

Regarding claim 2

Klein teaches wherein the controlled device is utilized to perform a portion of an industrial

process, the controller is an industrial controller, and the first program portion is a control

program portion – see column 5 lines 29-34.

Regarding claims 3 and 31

Klein teaches wherein the control program portion is written in ladder logic code – see column 4

lines 45-52.

Regarding claim 4

Klein teaches wherein the plurality of program portions additionally includes a fourth program

portion that is base firmware stored in a read-only memory of the at least one storage medium,

and wherein the base firmware is capable of receiving the first signals from the first program and

formatting the first signals for transmission to the controlled device – see column 5 lines 13-27.

Regarding claim 5

Klein teaches wherein the second program portion includes firmware extension programming –
see column 5 lines 38-53.

Regarding claim 6

Klein teaches wherein the second program portion includes a planner that governs at least a
portion of the standard agent-type functionality including creating and interpreting bid request
messages and bid messages – see column 5 lines 54-61.

Regarding claim 7

Klein teaches wherein the second program portion includes an execution controller that governs
at least a portion of the standard agent-type functionality including translating plans of the
planner into commands that can be provided to the first program portion – see column 7 lines 13-
33.

Regarding claims 11 and 33

Klein teaches wherein the bid request messages and bid messages include scripts written in a
language selected from the group consisting of JDL, XML and KQML – see column 7 lines 34-
42.

Regarding claim 12

Klein teaches wherein the planner includes at least one of parsing/integration programming that
allows the planner to process the bid request messages and bid messages, and subcontracting
management programming – see column 11 line 65 to column 2 line 15.

Regarding claim 13

Klein teaches wherein the planner further includes wrapping/unwrapping software for formatting at least some of the bid request messages and the bid messages in accordance with a FIPA protocol – see column 15 lines 9-43.

Regarding claim 15

Klein teaches wherein the second program portion is capable of governing a downloading of at least some of the third program portion from a source other than the controller during development of a distributed control system of which the controller forms a part – see column 13 lines 24-36.

Regarding claim 16

Klein teaches wherein the second program portion further allows for remote activation and deactivation at least some of the agent-type functionality of the controller – see column 1 lines 23-35.

Regarding claim 17

Klein teaches wherein the second program portion operates in a priority-based manner and employs a Common Industrial Protocol, and wherein the controller serves as a bridge device between standard industrial networks and packing protocols and multi-agent system communication languages and logical networks – see column 9 lines18-33.

Regarding claim 18

Klein teaches wherein the second program portion includes at least one directory facilitator – see column 7 lines 52-61.

Regarding claim 19

Klein teaches wherein each directory facilitator is capable of accessing a first data portion in which addresses corresponding to a first plurality of agents are listed, and a second data portion in which capabilities corresponding to a second plurality of agents are listed – see column 7 lines 13-42.

Regarding claim 20

Klein teaches wherein the second program portion includes both a local directory facilitator and a global directory facilitator, wherein the directory facilitators are permanent and generic components, and wherein the controller has employs any of a variety of protocols to organize intercommunications among the directory facilitators – see column 5 lines 38-61.

Regarding claim 21

Klein teaches wherein the second program portion includes a capability matcher that is capable of monitoring interactions among agents and identifying related clusters of agents – see column 6 lines 51-67.

Regarding claim 22

Klein teaches wherein the third program portion includes at least one of application-specific agent scripts portion, a diagnostics portion and an equipment model portion – see column 5 lines 44-53.

Regarding claim 24

Klein teaches wherein the plurality of program portions further includes a fourth program portion providing an operating system – see column 5 lines 13-27.

Regarding claim 30

Klein teaches wherein the application-specific agent program portion includes programming providing a diagnostics capability and an equipment model that is written in a language selected from the group consisting of C++, JAVA, and another high-level language – column 7 lines 34-42.

Regarding claim 34

Klein teaches wherein the supplementing includes at least one of downloading the application-specific control programming and the application-specific agent-type programming onto the controller by way of a communication linkage and coupling an add-on device including the application-specific control programming and the application-specific agent-type programming to the controller – see column 9 lines 11-33.

Response to Arguments

In the remark, applicants argue that cited reference fails to teach: "a third program portion capable of governing application-specific agent-type functionality" as to claim 1.

In response to applicants' argument,

Prior art Klein (USPN 5,499,364) discloses in column 7 lines 14-33 as described on page 11 of applicants' remark. Such that Klein is using "the local knowledge database to govern how the agents communicate with one another within the distributed system". Applicants further argue that "one skilled in the art of distributed control systems would characterize such a local knowledge database and the associated programming as governing standard agent-type

functionality". Examiner agree, however, this knowledge database is also being used to govern

the application-specific agent-type functionality as described on page 6 paragraph 13 of the

original specification in the current application as follow:

> [0013] The present inventors have further recognized that, in certain embodiments such as
> those employing industrial controllers, communications between the agent-type
> programming (both general and application-specific) and the application-specific control
> programming, can occur by way of one or more data tables existing on the industrial
> controllers. That is, signals can be passed between the various programs simply by
> modifying and reading values stored on a data table, and/or by way of generating simple
> signals/threads when such modifications of values occur. By using such data table(s) for
> communication between the agent-type programming and control programming,
> customization of the various programs for interaction with one another is kept to a
> minimum.

According to the specification, the application-specific control program can occur by simply

reading values stored on a data tables (such as the local knowledge database of Klein) to control

the communication between the agents. The concepts described here is similar to what has

described in column 7 lines 14-33 of Klein as discussed above. Thus, Klein teaches the claimed

limitations where a program portion capable of governing application-specific agent-type

functionality.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday - Friday from 7:30 AM - 4:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.** Responses may also be faxed to the **official fax number (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

THOMAS PHAM
PRIMARY EXAMINER

May 10, 2007